



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Nakayoshi, et al.

:

: Examiner: Sellers, Robert E.

Title: Silver-Filled Electrically Conductive

: Appellants' Brief

Organosiloxane Compositions

: Art Unit: 1712

Serial No.: 10/052,760

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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Real Party in Interest

The real party in interest in this appeal is Dow Corning Toray Silicone Company, Limited, the assignee of the above application.

Related Appeals and Interferences

This application is a continuation of U.S. Patent Application Serial No. 08/722,733. U.S. Patent Application Serial No. 08/722,733 was appealed, and the Board of Appeals and Interferences sustained the rejection. Appellants are not aware of any other related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-7 were originally filed in this application. Claims 1-7 were canceled, and claims 8-20 were added by amendment on 17 January 2002. Claims 8-15 and 17-20 were elected with traverse pursuant to an election of species requirement on 12 June 2003. Claim 16 was withdrawn from consideration in an office action dated 20 June 2003. Claims 8-5 and 17-20 were finally rejected in the office action dated 22 July 2003.

### Status of Amendments

A preliminary amendment was submitted on 17 January 2002. The Examiner entered this amendment. An amendment under 37 C.F.R. §1.111 was submitted on 10 July 2003. The Examiner entered this amendment. An amendment was submitted with this Notice of Appeal dated 20 November, 2003. No other amendments have been submitted subsequent to the Final Rejection dated 25 September 2001. The appealed claims 8-15 and 17-20, as amended, are in Appendix A of this brief.

### Summary of the Invention

Appellants' invention relates to a composition comprising the product obtained by blending ingredients (A), (B), (C), (D), (E), and (F) to homogeneity. Ingredient (A) is 100 parts by weight of a polyorganosiloxane containing at least two alkenyl radicals per molecule (p. 16, line 1 to p. 18, line 9). Ingredient (B) is an organohydrogensiloxane containing at least two silicon-bonded hydrogen atoms in each molecule, in a quantity sufficient to provide from 0.5 to 3 silicon-bonded hydrogen atoms per alkenyl radical in ingredient (A) (p. 18, line 10 to p. 24, line 10). Ingredient (C) is from 50 to 2,000 parts by weight of finely divided silver particles pre-treated with an organosilicon compound selected from the group consisting of (i) silanes containing at least one alkoxy group and (ii) organosiloxanes (p. 8, line 15 to p. 15, line 20). Ingredient (D) is an amount sufficient to promote curing of said composition of a platinum catalyst (p. 24, line 11 to p. 25, line 5). Ingredient (E) is up to 20 weight percent, based on the weight of ingredient (A), of an organosilicon compound containing at least one silicon-bonded alkoxy group per molecule (p. 25, line 6 to p. 27, line 18). Ingredient (F) is 0.001 to 5 weight parts, per 100 weight parts of ingredient (A), of a cure inhibitor (p. 27, line 19 to p. 28, line 5).

### Issues

1. Whether claim 10 is broader than the enabling disclosure of the specification under 35 U.S.C. §112, first paragraph.

2. Whether claims 8-15 and 17-20 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent 5,173,756 to Nakayoshi in view of U.S. Patent 4,801,445 to Fukui and Cole and Japanese Patent 446962.

### Grouping of Claims

Claims 8-15 and 17-20 are pending in the instant application and are the subject of this appeal. Claims 8, 10-13, 15, and 17-20 should be grouped together for purposes of this appeal. If a ground of rejection for claim 8 is sustained, then it will be equally applicable to claims 10-13, 15, and 17-20. Claim 9 should be grouped separately for purposes of this appeal because none of the alkoxysilanes specified in claim 9 are disclosed by Fukui. Claim 14 should be grouped separately for purposes of this appeal because none of the silicone resins specified in claim 14 are disclosed by Fukui.

### Argument

1. *Whether claim 10 is broader than the enabling disclosure of the specification under 35 U.S.C. §112, first paragraph.*

The Examiner rejected claim 10 under 35 U.S.C. §112, first paragraph, as being broader than the enabling disclosure of the specification because the Examiner argues that the specification is enabling for 1,3,5,7-tetramethylcyclotetrasiloxane and 1,3,5,7,9-pentamethylcyclopentasiloxane but does not reasonably provide enablement for cyclosiloxane (c) which encompasses species not described. The Examiner further argues that the specification does not enable any person skilled in the art to make and use the invention commensurate in scope with the claims.

The specification provides enablement for cyclosiloxane (c). The species disclosed at page 9, line 23 to page 11, line 12, are exemplary and not limiting (page 9, line 25). Cyclosiloxanes are known in the art and commercially available. A person having ordinary skill in the art would be able to select appropriate cyclosiloxanes suitable for use as cyclosiloxane (c) based on knowledge generally available to one having ordinary skill in the art of cyclosiloxane

chemistry. The Appellants request that the rejection of claim 10 under 35 U.S.C. §112, first paragraph, be reversed and the claims allowed to issue.

2. *Whether claims 8-15 and 17-20 are unpatentable over U.S. Patent 5,173,756 to Nakayoshi in view of U.S. Patent 4,801,445 to Fukui and Cole and Japanese Patent 446962 under 35 U.S.C. §103(a).*

The Examiner rejected claims 8-15 and 17-20 under 35 U.S.C. §103(a) as being unpatentable over Nakayoshi in view of Fukui and Cole and Japanese Patent 446962 because the Examiner argues that Nakayoshi discloses a conductive adhesive comprising an alkenyl group-containing organopolysiloxane, an organohydrogensiloxane, silver flakes, a chloroplatinic acid/methylvinylsiloxane dimer complex and an epoxy endblocked organosilicon compound containing diethoxysiloxy, dimethylsiloxy, and methylvinylsiloxy units. The Examiner admits that Nakayoshi fails to recite pre-treatment of the silver particles with an organosilicon compound. The Examiner further argues that Fukui discloses treatment of silver particles with an organosilicon compound. The Examiner concludes that it would have been obvious to treat the silver flakes of Nakayoshi with the organosilicon compound of Fukui to impart stabilization against oxidation and improve dispersibility. The Examiner admits that the cure inhibitor is not recited by Nakayoshi and Fukui. The Examiner further argues that Cole discloses a formulation containing an inhibitor such as acetylenic alcohols. The Examiner further argues that the Japanese patent discloses a blend of alkenyl groups-containing organopolysiloxane, organohydrogenpolysiloxane, filler, platinum-silicone resin catalyst and phenyl butynol. The Examiner concludes that it would have been obvious to incorporate phenyl butynol into the composition of Nakayoshi to prolong pot life and enhance storage stability based on the disclosures of Cole and the Japanese patent.

To properly conclude that a claimed invention is obvious under 35 U.S.C. §103, the decision maker must step back in time into the shoes worn by a person having ordinary skill in the art when the invention was unknown and just before it was made. In light of all the evidence, the decision maker must then determine whether the claimed invention as a whole would have

been obvious at that time to that person<sup>1</sup>. Four factual inquiries are to be considered for determining obviousness, as follows: (A) determining the scope and contents of the prior art; (B) ascertaining the differences between the prior art and the claims in issue; (C) resolving the level of ordinary skill in the pertinent art; and (D) evaluating evidence of secondary considerations<sup>2</sup>.

A prima facie case of obviousness under 35 U.S.C. §103 requires a showing of some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art that would lead the person to combine the relevant teachings of the references<sup>3</sup>.

Obviousness rejections are precluded based on a combination of teachings of references from nonanalogous arts<sup>4</sup>. The determination that a reference is nonanalogous is two-fold<sup>5</sup>. First, it must be determined whether the reference is within the field of the inventor's endeavor<sup>6</sup>. If not, it must be determined whether the reference is reasonably pertinent to the particular problem the inventor was trying to solve<sup>7</sup>.

Nakayoshi discloses a conductive adhesive for bonding a semiconductor pellet and tab (col. 1, lines 6-9). The problems to be solved by Nakayoshi are to prevent reduced wire bondability and reduced reliability of the semiconductor device and to improve moisture resistance of the semiconductor device (col. 2, lines 6-32). Fukui discloses a modified powder or particulate material having a silicone polymer film coated on substantially the entire surface thereof (col. 1, lines 7-10). The modified powder is used in cosmetics, pharmaceuticals, coating materials, inks, paints, decoratives, fragrances, magnetic materials, and medical materials. The problem to be solved by Fukui is to prevent the modified powder from denaturing or decomposing perfumes, oils, or resins and therefore not cause problems such as denaturation, odor change, and color change (col. 1, lines 28-25).

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<sup>1</sup> *In re Fine*, 837 F.2d 1071, 1073; 1988 U.S. App. LEXIS 686; 5 U.S.P.Q.2d (BNA) 1596 (1988).

<sup>2</sup> *Graham v. John Deere*, 383 U.S. 1; 86 S. Ct. 684; 15 L. Ed. 2d 545; 1966 U.S. LEXIS 2908; 148 U.S.P.Q. (BNA) 459 (1966), and MPEP §2141.

<sup>3</sup> *In re Fine*, 837 F.2d 1071, 1074; 1988 U.S. App. LEXIS 686; 5 U.S.P.Q.2d (BNA) 1596 (1988).

<sup>4</sup> *In the Matter of the Application of Wood and Eversole*, 599 F.2d 1032, 1036; 1979 CCPA LEXIS 243; 202 U.S.P.Q. (BNA) 171 (1979).

<sup>5</sup> *In the Matter of the Application of Wood and Eversole*, 599 F.2d 1032, 1036; 1979 CCPA LEXIS 243; 202 U.S.P.Q. (BNA) 171 (1979).

<sup>6</sup> *In the Matter of the Application of Wood and Eversole*, 599 F.2d 1032, 1036; 1979 CCPA LEXIS 243; 202 U.S.P.Q. (BNA) 171 (1979).

The field of this invention relates to an electrically conductive curable organosiloxane composition (p. 1, lines 6-7). The problem to be solved is to provide compositions yielding cured electrically conductive elastomers that that retain their electrical properties for extended periods of time (p. 1, lines 7-11). This invention and Fukui are not within the same field of endeavor because Fukui discloses a modified powder for use in cosmetics, pharmaceuticals, coating materials, inks, paints, decoratives, fragrances, magnetic materials, and medical materials (col. 1, lines 7-10 and lines 28-25), and this invention relates to an electrically conductive curable organosiloxane composition (p. 1, lines 6-7). Furthermore, this invention and Fukui are not pertinent to the same problem because the problem to be solved by Fukui is to prevent the modified powder from denaturing or decomposing perfumes, oils, or resins and therefore not cause problems such as denaturation, odor change, and color change (col. 1, lines 28-25), and the problem to be solved by this invention is to provide compositions yielding cured electrically conductive elastomers that that retain their electrical properties for extended periods of time (p. 1, lines 7-11). Therefore, Fukui is not properly cited because this invention and Fukui are not within the same field of endeavor and not pertinent to solving the same problem.

The situation with this invention is similar to that in *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992) (Clay). Claims were directed to a process for storing a refined liquid hydrocarbon product in a storage tank having a dead volume between the tank bottom and its outlet port wherein a gelled solution filled the tank's dead volume to prevent loss of stored product while preventing contamination. One of the references relied upon disclosed a process for reducing the permeability of natural underground hydrocarbon bearing formations using a gel similar to that of applicant to improve oil production. The court disagreed with the argument that the reference and claimed inventions were part of the same endeavor, "maximizing withdrawal of petroleum stored in petroleum reserves," and found that the inventions involved different fields of endeavor since the reference taught the use of the gel in a different structure for a different purpose under different temperature and pressure conditions, and since the application related to storage of liquid hydrocarbons rather than extraction of crude petroleum. (This is similar to the

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<sup>7</sup> *In the Matter of the Application of Wood and Eversole*, 599 F.2d 1032, 1036; 1979 CCPA LEXIS 243; 202 U.S.P.Q. (BNA) 171 (1979).

situation with this application because Fukui modified powders for use in cosmetics, pharmaceuticals, coating materials, inks, paints, decoratives, fragrances, magnetic materials, and medical materials, which differs from the silver particles used in this invention to provide electrically conductive elastomers that retain their electrical properties for extended periods of time.) In *Clay*, the court also found the reference was not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for refined petroleum by considering a reference dealing with plugging underground formation anomalies<sup>8</sup>. This is similar to the situation with this invention because one skilled in the art of providing electrically conductive elastomers would not reasonably have expected to solve the problem of deterioration of electrical properties over time by looking to a reference dealing with cosmetics, pharmaceuticals, coating materials, inks, paints, decoratives, fragrances, magnetic materials, and medical materials.

For the reasons above, Fukui and this invention are not within the same field of endeavor and not pertinent to solving the same problem. Fukui is not properly cited because this invention and Fukui are nonanalogous. Therefore, the Appellants respectfully request that the rejection of rejected claims 8-15 and 17-20 under 35 U.S.C. §103(a) as being unpatentable over Nakayoshi in view of Fukui and Cole and Japanese Patent 446962 be reversed.

Furthermore, obviousness is tested by what the combined teachings of the references would have suggested to one of ordinary skill in the art<sup>9</sup>. The test for obviousness is **not** whether the features of one reference may be bodily incorporated into another reference<sup>10</sup>. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination<sup>11</sup>. It is improper to use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to

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<sup>8</sup> *In re Clay*, 966 F.2d 656; 23 U.S.P.Q.2d 1058 (1992) and MPEP §2141.01(a).

<sup>9</sup> *In re Fine*, 837 F.2d 1071, 1075; 1988 U.S. App. LEXIS 686; 5 U.S.P.Q.2d (BNA) 1596 (1988).

<sup>10</sup> *In the Matter of the Application of Wood and Eversole*, 599 F.2d 1032, 1037; 1979 CCPA LEXIS 243; 202 U.S.P.Q. (BNA) 171 (1979).

<sup>11</sup> *In re Fine*, 837 F.2d 1071, 1075; 1988 U.S. App. LEXIS 686; 5 U.S.P.Q.2d (BNA) 1596 (1988).

depreciate the claimed invention<sup>12</sup>. A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination<sup>13</sup>. Additionally, it is error to find obviousness where the references teach away from the invention<sup>14</sup>. A reference should be considered for its antithetical teachings<sup>15</sup>. In determining the differences between the prior art and the claims, the question is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious<sup>16</sup>.

One skilled in the art would not be motivated to combine the disclosures of Nakayoshi and Fukui because Nakayoshi discloses a conductive adhesive comprising a conductive addition reaction-curing silicone rubber composition, which contains less than or equal to 500 ppm of low molecular weight siloxane (col. 3, lines 19-23). Examples of such a low molecular weight siloxane include cyclic dimethylpolysiloxane decamer (col. 8, lines 15-23). Fukui discloses that treatment of the powder can be effected by vapor phase treatment (col. 17, lines 1-3). The powder can be treated with, for example, hexamethyl cyclotrisiloxane (col. 19, lines 60-66) or 1,3,5,7-tetramethylcyclotetrasiloxane (col. 20, lines 66-67). One skilled in the art would recognize that hexamethyl cyclotrisiloxane and 1,3,5,7-tetramethylcyclotetrasiloxane are both siloxanes having an even lower molecular weight than cyclic dimethylpolysiloxane decamer. Therefore, Nakayoshi and Fukui teach away from each other because Nakayoshi discloses a conductive addition reaction-curing silicone rubber composition must contain less than or equal to 500 ppm of low molecular weight siloxane, and Fukui suggests purposely adding a low molecular weight siloxane in an amount that may far exceed 500 ppm. For example, Fukui discloses that the powder treated with the 1,3,5,7-tetramethylcyclotetrasiloxane can be formulated in a foundation composition (col. 37, lines 50-69). The foundation composition contains 78 weight parts of the treated powder, where the treated powder contains 1.5 weight %

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<sup>12</sup> *In re Fine*, 837 F.2d 1071, 1075; 1988 U.S. App. LEXIS 686; 5 U.S.P.Q.2d (BNA) 1596 (1988) and MPEP §2141.01.

<sup>13</sup> MPEP §2141.03.

<sup>14</sup> *In re Fine*, 837 F.2d 1071, 1074; 1988 U.S. App. LEXIS 686; 5 U.S.P.Q.2d (BNA) 1596 (1988).

<sup>15</sup> *Ashland v. Delta*, 776 F.2d 281, 301; 1985 U.S. App. LEXIS 15309; 227 U.S.P.Q. (BNA) 657 (1985).

<sup>16</sup> MPEP §2141.02.



of the treating agent (col. 20, line 56 to col. 21 line 11). This corresponds to 12,807 ppm of the composition<sup>17</sup>.

Fukui does not teach or suggest that the modified powder would provide any benefit to a conductive addition reaction curing composition. Nakayoshi suggests that the modified powder of Fukui would be detrimental to a conductive addition reaction curing composition because the low molecular weight siloxane that can be used to modify the powder of Fukui destroys a benefit of the composition of Nakayoshi. (Example 1 and Comparison Example at col. 9-10 of Nakayoshi show that when a composition containing low molecular weight siloxanes is used, the proportion of moisture resistance defects increases as compared to when a composition that does not contain the low molecular weight siloxanes is used.) Fukui discloses that the powder treated with the 1,3,5,7-tetramethylcyclotetrasiloxane can be formulated in a foundation composition (col. 37, lines 50-69). The foundation composition contains 12,807 ppm of the 1,3,5,7-tetramethylcyclotetrasiloxane, as discussed above. Therefore, Fukui teaches away from Nakayoshi because Fukui discloses that a low molecular weight siloxane is a suitable treating agent for the powder and that the powder treated with the agent can be formulated in a composition in an amount such that the composition contains far more than 500 ppm of the low molecular weight siloxane. Furthermore, Nakayoshi suggests that modifying the conductive addition reaction curing composition by adding the modified filler of Fukui would be undesirable because the modified filler has low molecular weight siloxane, which is detrimental to the composition of Nakayoshi. For the reasons above, one skilled in the art would not be motivated to add a powder treated with a treating agent of Fukui to the composition of Nakayoshi. Therefore, the Appellants respectfully request that the rejection of rejected claims 8-15 and 17-20 under 35 U.S.C. §103(a) as being unpatentable over Nakayoshi in view of Fukui and Cole and Japanese Patent 446962 be overturned.

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<sup>17</sup> This amount may be calculated as follows. 20 kg of titanium dioxide was treated with 1,3,5,7-tetramethylcyclotetrasiloxane. 20.3 kg of modified powder was obtained.  $(20.3-20) \text{ kg } 1,3,5,7\text{-tetramethylcyclotetrasiloxane} / 20.3 \text{ kg treated powder} \times 100 = 1.5 \text{ parts } 1,3,5,7\text{-tetramethylcyclotetrasiloxane per hundred parts the treated powder.}$   
 $1.5 \text{ parts } 1,3,5,7\text{-tetramethylcyclotetrasiloxane} / 100 \text{ parts treated powder} \times 78 \text{ parts powder} / (78 \text{ parts powder} + 5.5 \text{ parts 2-ethylhexyl palmitate} + 5.0 \text{ parts liquid paraffin} + 1.0 \text{ part sorbitan sesquileate} + 0.3 \text{ part preservative} + 0.2 \text{ part perfume}) \times 10^6 \text{ part per million} = 12,807 \text{ parts } 1,3,5,7\text{-tetramethylcyclotetrasiloxane per million parts composition.}$

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure<sup>18</sup>.

For the reasons discussed above, there is no teaching or suggestion in the disclosures of either Nakayoshi or Fukui that would motivate one skilled in the art to combine the disclosures to add the treated powder of Fukui to the composition of Nakayoshi because the disclosure of Nakayoshi suggests this would be detrimental. Therefore, the first criterion for a *prima facie* case of obviousness has not been met. Neither Nakayoshi nor Fukui teaches or suggests any potential benefit from adding the treated powder of Fukui to the composition of Nakayoshi, therefore, the second criterion to establish a *prima facie* case of obviousness has not been met. Finally, even if Cole and the Japanese patent suggest adding a cure inhibitor such as phenyl butynol to a composition, this does not cure the defects of Nakayoshi in view of Fukui, discussed above. Therefore, the third criterion to establish a *prima facie* case of obviousness has not been met. This invention is not obvious over Nakayoshi in view of Fukui, Cole, and the Japanese patent because a *prima facie* case of obviousness has not been established. Therefore, the Appellants respectfully request that rejection of claims 8-15 and 17-20 under 35 U.S.C. §103(a) be reversed and the claims allowed to issue.

Furthermore, claim 9 relates to the composition described above where component (C)(i) comprises an alkoxysilane. Fukui discloses a modified powder or particulate material having a silicone polymer film coated on substantially the entire surface thereof. The silicone polymer has the general formula:  $(R^1HSiO)_a(R^2R^3SiO)_b(R^4R^5R^6SiO_{1/2})_c$ ; where  $R^1$ ,  $R^2$ , and  $R^3$  represent hydrogen or a hydrocarbon residue having 1 to 10 carbon atoms,  $R^4$ ,  $R^5$ , and  $R^6$  represent hydrogen or a hydrocarbon residue having 1 to 10 carbon atoms,  $a$  is 0 or an integer of 1 or more,

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<sup>18</sup> MPEP §2142.

b is 0 or an integer of 1 or more, and c is zero or 2, provided that c is 2 when a and b are simultaneously zero and a+b is an integer of 3 or more when c is zero (abstract). Fukui does not teach or suggest any alkoxysilanes, such as (a) methyltrimethoxysilane, (b) vinyltrimethoxysilane, (c) 3-glycidoxypropyltrimethoxysilane, (d) 3-methacryloxypropyltrimethoxysilane, (e) dimethyldimethoxysilane, (f) trimethylmethoxysilane, (g) trimethylethoxysilane, (h) tetramethoxysilane, and (i) tetraethoxysilane.

Therefore, one skilled in the art would not have a reasonable expectation of success to arrive at the invention claimed in claim 9 based on the disclosures of Nakayoshi and Fukui for the reasons discussed above for claims 8-15 and 17-20 and because neither Nakayoshi nor Fukui discloses any of the alkoxysilanes in claim 9. Fukui teaches away from using alkoxysilanes because Fukui discloses treating the powder or particulate material with a silicone polymer having at least two silicon atoms (*i.e.*, when c is 2 and a and b are simultaneously zero). In contrast, none of the alkoxysilanes in claim 9 have more than 1 silicon atom. Therefore, Nakayoshi in view of Fukui fail to teach or suggest all of the limitations of claim 9, *e.g.*, limitations including the alkoxysilanes. A *prima facie* case of obviousness has not been established with respect to claim 9. The Appellants respectfully request that the rejection of claim 9 under 35 U.S.C. §103(a) be reversed.

Claim 14 relates to the composition described above where ingredient (C)(ii) comprises a silicone resin. Fukui discloses a modified powder or particulate material having a silicone polymer film coated on substantially the entire surface thereof. The silicone polymer has the general formula:  $(R^1HSiO)_a(R^2R^3SiO)_b(R^4R^5R^6SiO_{1/2})_c$ ; where  $R^1$ ,  $R^2$ , and  $R^3$  represent hydrogen or a hydrocarbon residue having 1 to 10 carbon atoms,  $R^4$ ,  $R^5$ , and  $R^6$  represent hydrogen or a hydrocarbon residue having 1 to 10 carbon atoms, a is 0 or an integer of 1 or more, b is 0 or an integer of 1 or more, and c is zero or 2, provided that c is 2 when a and b are simultaneously zero and a+b is an integer of 3 or more when c is zero (abstract). Fukui does not teach or suggest any silicone resins such as (a) a resin comprising  $R_3SiO_{1/2}$  and  $SiO_{4/2}$  units, (b) a resin comprising  $RSiO_{3/2}$  units, (c) a resin comprising  $R_2SiO_{2/2}$  and  $RSiO_{3/2}$  units, or (d) a resin comprising  $R_2SiO_{2/2}$ ,  $RSiO_{3/2}$ , and  $SiO_{4/2}$  units, where each R represents a substituted or unsubstituted monovalent hydrocarbon.

Therefore, one skilled in the art would not have a reasonable expectation of success to arrive at the invention claimed in claim 14 based on the disclosures of Nakayoshi and Fukui for the reasons discussed above for claims 8-15 and 17-20 and because neither Nakayoshi nor Fukui discloses any of the silicone resins in claim 14. Fukui teaches away from using silicone resins because Fukui discloses treating the powder or particulate material with a silicone polymer having the structure described above. In contrast, none of the silicone resins in claim 14 have the structure of the silicone polymer of Fukui. Therefore, Nakayoshi in view of Fukui fail to teach or suggest all of the limitations of claim 14, *e.g.*, limitations including the silicone resins. A *prima facie* case of obviousness has not been established with respect to claim 14. The Appellants respectfully request that the rejection of claim 14 under 35 U.S.C. §103(a) be reversed.

Based on the above arguments, the Appellants respectfully request that the Examiner's rejections of claims 8-15 and 17-20 on the present application be reversed and that the claims be allowed.

Respectfully Submitted,  
DOW CORNING CORPORATION



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#### Appendix A - Appealed Claims

8. A composition comprising the product obtained by blending to homogeneity:

(A) 100 parts by weight of a polyorganosiloxane containing at least two alkenyl radicals per molecule;

(B) an organohydrogensiloxane containing at least two silicon-bonded hydrogen atoms in each molecule, in a quantity sufficient to provide from 0.5 to 3 silicon-bonded hydrogen atoms per alkenyl radical in ingredient (A);

(C) from 50 to 2,000 parts by weight of finely divided silver particles pre-treated with an organosilicon compound selected from the group consisting of (i) silanes containing at least one alkoxy group and (ii) organosiloxanes;

(D) an amount sufficient to promote curing of said composition of a platinum catalyst;

(E) up to 20 weight percent, based on the weight of component (A), of ingredient (E), an organosilicon compound containing at least one silicon-bonded alkoxy group per molecule; and

(F) 0.001 to 5 weight parts, per 100 weight parts of ingredient (A), of a cure inhibitor.

9. The composition of claim 8, where ingredient (C)(i) comprises an alkoxysilane comprising:

- (a) methyltrimethoxysilane,
- (b) vinyltrimethoxysilane,
- (c) 3-glycidoxypropyltrimethoxysilane,
- (d) 3-methacryloxypropyltrimethoxysilane,
- (e) dimethyldimethoxysilane,
- (f) trimethylmethoxysilane,
- (g) trimethylethoxysilane,

- (h) tetramethoxysilane, and
- (i) tetraethoxysilane.

10. The composition of claim 8, where ingredient (C)(ii) comprises

- (a) a siloxane oligomer,
- (b) a linear polyorganosiloxane,
- (c) a cyclosiloxane,
- (d) a silicone resin, or
- (e) a mixture thereof.

11. The composition of claim 8, where ingredient (C)(ii) comprises a siloxane oligomer comprising:

- (a) a silanol endblocked dimethylsiloxane oligomer,
- (b) a silanol endblocked dimethylsiloxane/methylvinylsiloxane co-oligomer,
- (c) a silanol endblocked methylvinylsiloxane oligomer, or
- (d) a silanol endblocked methylphenylsiloxane oligomer.

12. The composition of claim 8, where ingredient (C)(ii) comprises a linear polyorganosiloxane comprising:

- (a) a trimethylsiloxy endblocked polydimethylsiloxane,
- (b) a trimethylsiloxy endblocked dimethylsiloxane/ methylvinylsiloxane copolymer,
- (c) a trimethylsiloxy endblocked dimethylsiloxane/ methylphenylsiloxane copolymer,
- (d) a trimethylsiloxy endblocked polymethylhydrogensiloxane,
- (e) a trimethylsiloxy endblocked dimethylsiloxane/ methylhydrogen siloxane copolymer,
- (f) a silanol endblocked polydimethylsiloxane,
- (g) a silanol endblocked dimethylsiloxane/ methylvinylsiloxane copolymer,
- (h) a silanol endblocked dimethylsiloxane/ methylphenylsiloxane copolymer,
- (i) a silanol endblocked polydimethylhydrogensiloxane,
- (j) a silanol endblocked dimethylsiloxane/ methylhydrogensiloxane copolymer,

(k) a dimethylvinylsiloxyl endblocked polydimethylsiloxane,  
(l) a dimethylvinylsiloxyl endblocked dimethylsiloxane/ methylvinylsiloxane copolymer,  
(m) a dimethylvinylsiloxyl endblocked dimethylsiloxane/ methylphenylsiloxane  
copolymer,  
(n) a dimethylhydrogensiloxyl endblocked polymethylhydrogensiloxane, or  
(o) a dimethylhydrogensiloxyl endblocked dimethylsiloxane/ methylhydrogensiloxane  
copolymer.

13. The composition of claim 8, where ingredient (C)(ii) comprises a cyclosiloxane comprising 1,3,5,7-tetramethylcyclotetrasiloxane or 1,3,5,7,9-pentamethylcyclopentasiloxane.

14. The composition of claim 8, where ingredient (C)(ii) comprises a silicone resin comprising:

- (a) a resin comprising  $R_3SiO_{1/2}$  and  $SiO_{4/2}$  units,
- (b) a resin comprising  $RSiO_{3/2}$  units,
- (c) a resin comprising  $R_2SiO_{2/2}$  and  $RSiO_{3/2}$  units, or
- (d) a resin comprising  $R_2SiO_{2/2}$ ,  $RSiO_{3/2}$ , and  $SiO_{4/2}$  units,

where each R represents a substituted or unsubstituted monovalent hydrocarbon.

15. The composition of claim 8, where the composition contains 0.5 to 8 parts by weight of ingredient (E), per 100 parts by weight of ingredient (A), and ingredient (E) further comprises at least one substituent selected from the group consisting of silicon bonded hydrogen, silicon-bonded vinyl, epoxy and trialkoxysilylalkyl radicals.

17. The composition of claim 8, where ingredient (E) comprises an organosilicon compound comprising:



where  $a$  and  $b$  are each integers with values of at least 1,





18. The composition of claim 8, where ingredient (F) comprises an alkynyl alcohol, an ene-yne compound, 1,3,5,7-tetramethyl-1,3,5,7-tetravinylcyclotetrasiloxane, 1,3,5,7-tetramethyl-1,3,5,7-tetrahexenylcyclotetrasiloxane, or benzotriazole.

19. The composition of claim 8, where ingredient (B) has at least one silicon-bonded alkoxy group per molecule and ingredient (E) has not more than one silicon-bonded hydrogen atom per molecule.

20. The composition of claim 8 when cured on a solid substrate.